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USES OF THE TEN THOUSAND WORDS COMMONEST WORDS IN WRITING

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UNDER a grant from the Commonwealth Fund the writer began in 1923 an investigation of the words most commonly used in writing. The sources of material used in this investigation are briefly described in the *Third Yearbook* of the Department of Superintendence.¹ To summarize this investigation briefly, it included in addition to a compilation of all investigations made up to the year 1923, new investigations as follows: (1) The vocabulary of letters of 26 different types of business, (2) The vocabulary of personal letters from every state in the Union, (3) An extensive sampling of the letters of eight noted English writers and eight noted American writers; also all of the letters in E. V. Lucas's "The Gentlest Art," (4) The vocabularies of letters printed in magazines and metropolitan newspapers, (5) The vocabulary of letters of application and recommendation, (6) The vocabulary of minutes, resolutions, and committee reports, (7) The vocabulary of excuses written by parents

to teachers, and (8) The vocabulary of a single individual over a period of eight years. The total number of running words in these investigations was more than five million. Over thirty-six thousand different words were found. The total for each of these words was determined by adding the credits from each of the types of investigation described above.² The words were then arranged in order of frequency, the most frequent word being "the," the second most frequent "and," etc.³ In this fashion it was possible to determine within any given limit—say 1000, 5000, 10,000, 20,000—the most common words. The 10,000 words most frequently used in writing appear in a monograph, "A Basic Writing Vocabulary,"⁴ which gives the results of the investigation which was carried on under the grant from the Commonwealth Fund.

¹ In determining the importance of a word, a system of weighting was used which took into account not merely the total frequency of the word but also the number of different classes of business, number of different sections of the country, etc. in which the word was found.

² For the first 3009 of these words see the *Fourth Yearbook* of the Department of Superintendence.

³ Horn, Ernest, "A Basic Writing Vocabulary," University of Iowa Monographs in Education, No. 4, University of Iowa, Iowa City, Iowa. 1926.

⁴ *Third Yearbook* of the Department of Superintendence, Washington, D. C., 1925.

USES OF THE 10,000 COMMONEST
WORDS IN WRITING

1. *Value in Improving the Teaching
of Spelling*

The chief contribution of this word list is to the improvement of instruction in spelling. It contributes directly or indirectly to the solution of each of the four main problems in teaching spelling. First, it affords a scientific basis for selecting the words to be taught; second, it furnishes an important part of the data by which the course of study can be properly graded; third, it makes possible the practical solution of many problems in method; fourth, it furnishes a scientifically determined list of words upon which spelling scales and tests may be constructed.

1. *The Selection of Words to be Taught*

The data given in this list help to solve two questions: (1) the relative value of words for the purpose of curriculum making, and (2) the number of words which should go into a course of study.

The data given for the various words are very important for the purpose of determining how many words to teach. In attempting to determine how many words should be included in the course of study in spelling one must take into consideration, first, the relative value of the words to be taught, and second, the time required for teaching any given number of words. The relative value of the words must be measured not only in terms of the subject of spelling but also in terms of the values of items in other subjects. Practically, the question may be stated in the following form: What is the limit beyond which the values resulting from learning to spell any additional number of words are less than those which would result from the same amount of time devoted to some other subject? It is clear that, other things being equal, the most important words should be chosen first in making the course of study in spelling. It is also clear that, since words are taken in

order of importance, each succeeding group of words will be less important.

When the 36,373 words of the present investigation (total number of different words found) were arranged in order of frequency, a study of the resulting table showed clearly how the law of diminishing returns operates in the subject of spelling. After a thousand words are taught, the addition of each group of approximately one thousand words adds a very small percentage to the number of running words which can be spelled by the learner. For example, the student who knows how to spell the 4000 commonest words adds, by learning an additional thousand words, only slightly more than one per cent to the number of running words which he can spell. Since many of the words are easy, this thousand could probably be learned in a year by a class studying fifteen minutes a day. Is the addition of one per cent to the spelling ability of a student sufficient to justify the expenditure of this amount of time? It will be seen immediately that in order to answer this question satisfactorily one ought to have for other subjects tables of diminishing returns comparable to the data which we now have for spelling. Unfortunately we do not have such data for any subject other than spelling. Such data have been made possible in spelling, first, because of the relatively simpler problem involved in applying scientific methods to evaluating the items in this subject, and second, because of the relatively greater amount of research which has been done in making the curriculum in this field. The best that can be done until better data are available for other subjects is the use of the method of judgments.

But no matter what number of words be decided upon as appropriate in the course of study, that number should be taken in order of importance. The curriculum maker who believes that 1000 words are sufficient should take from the

10,000 the 1000 words of highest importance. If 5000 words are needed, this number should likewise be chosen in order of usefulness. The full list of 10,000 words seems likely to be extensive enough even if spelling is to be taught throughout the junior and senior high school.

In using this list in making textbooks and courses of study in spelling and composition, it must be kept in mind that the frequency of the use of the word, which is the best measure of its probable future use, is only one measure of the importance of the word. It is a fundamental principle in making the curriculum in any subject that there are two types of measures of the importance of subject matter: first, that of the frequency with which subject matter is needed in life, and second, that of the cruciality or value attached to each of the occasions when the material is needed or used. Spelling illustrates this admirably. The data resulting from the Commonwealth investigation provide a satisfactory measure of the factor of frequency of use. However, it is clear that one must take into consideration other factors which measure the importance of a word in terms of cruciality. For example, the word *recommend* and the word *luck* have the same credits in the list of 10,000 words. As measured by frequency, the importance of these two words is the same. *Luck*, however, is misspelled by but one eighth-grade child in a hundred, while *recommend* is misspelled by forty-six eighth grade children in a hundred. It is clear that to omit *recommend* from the course of study in spelling is much more serious than to omit *luck* since *luck* would probably be learned incidentally. The spelling difficulty must therefore be taken as an additional measure of the importance of a word. Moreover, the word *luck* is used chiefly in personal letters in which the penalties for misspellings are very light, while *recommend* is used most frequently

in business letters and in letters of application in which the penalties for misspellings are very severe.

It should be pointed out that the credit assigned to the various words in this investigation has a significance beyond that accruing from the mere number of times the words were found. The sources of writing chosen for analysis were selected so as to provide data on the geographical distribution of each word, its distribution according to types of writing, and to a considerable extent its distribution according to time. The system of weighting used was such as to give additional importance to words which were widely distributed through the various types of writing. Data are now available in the spelling scales, published and unpublished, by which the spelling difficulty as a measure of importance may be obtained.

b. Grading the Course of Study

The four principal factors which should be considered in grading the course of study are (1) the probable future importance of the word in the writing done in life outside the school, (2) its spelling difficulty, (3) its occurrence in the child's vocabulary, (4) its probable use by children in the writing done by them during each school year. Additional minor factors are (1) the probable future importance of the word in reading done in life outside the school, (2) the probable use of the word in the reading done by children during each school year, and (3) the phonetic or unphonetic character of the word. The list of 10,000 words most commonly used in writing furnishes the data for the first of the four principal factors and, since it is the words in this list that must be graded, makes possible the research necessary to the utilization of data concerning the other three principal factors as well as the data concerning the three subordinate factors.

c. *Improvement of Methods of Teaching and Studying Spelling*

Many problems involved in improving methods of teaching or studying spelling can now be attacked adequately for the first time. For example, it has not been possible in the past to determine satisfactorily what the results would be if the spelling period were omitted, and if spelling were taught only incidentally in connection with the written work done in the school. If one assumes that the measure of efficiency in instruction in spelling in the school, incidentally or otherwise, is the degree of accuracy with which the child can spell the most important words likely to be written in life outside the school, then it is the words of this list which must be used as the final measure of any type of instruction. There are many other problems which cannot be solved without such data as are presented in the writer's monograph. One of these problems is that of determining whether or not derived forms of words should be taught. It is clear that one must find out first what these derived forms are, the frequency of the use of the derived forms, and the degree to which pupils who have been taught the base words can, without additional instruction, spell the derived words. A third problem that may now be attacked satisfactorily is that of determining which spelling rules, if any, can be taught with profit. The first step in such an investigation is obviously to inspect the present list in order to see the number of words which fit the rule, and the number of words which are exceptions to it. These are but samples of scores of problems in the improvement of learning which are bound up so intimately with the nature of the words to be taught that the problem of method cannot be satisfactorily solved without such data as are provided by this investigation.

d. *The Improvement of the Measurement of Spelling Ability*

In selecting lists for spelling contests, for examinations, and even for the scientific construction of spelling scales, care has not always been taken to include words of known value in the writing done in life outside the school. And yet it is clear that there is little or no value in testing the ability of children to spell words which they will probably not need to spell. Great injustice is often done in measuring the spelling ability of a pupil or in measuring the efficiency with which spelling has been taught in a school by using as a test words which neither are nor should be in the course of study. The data given in "A Basic Writing Vocabulary" constitute an important part of the measure of the probable social importance of a word, and are, therefore, indispensable for the construction of valid tests or spelling scales. It seems likely that the full list of 10,000 words is ample for the construction of any spelling test to be used in a practical way in the school, with the exception of those made for purposes of special experiments.

2. *The Improvement of Dictionaries*

Without question the data from this investigation, combined with the data from the Thorndike⁵ investigation, and the data from the investigations of the spoken vocabulary, make possible the very marked improvement of dictionaries, and particularly those which are prepared for school use. The various problems involved in utilizing these data for the purpose of dictionaries cannot be discussed in this article. It is obvious, however, that these data which show the commonest reading, writing, and speaking needs are invaluable for the selection of the words which are to be treated in the dictionary as well as in preparing definitions. The more restricted

⁵ Thorndike, E. L., *Teacher's Word Book*, Teachers College, Columbia University, New York, 1921.

the dictionary is in size, the more important it is to have access to just such data as are given in these three types of investigation.

3. *Value in Teaching English to Foreigners*

Combined with the Thorndike list and with lists now available from investigations of the spoken vocabulary, this list should be of great value in teaching English to foreigners. Computations based on these lists lead to the conclusion that the first 500 words common to these three lists make up with their repetitions between three-fourths and four-fifths of all of the running words used in the language. The student who learns these 500 words will therefore know nearly four out of five of the running words which he needs in reading, speaking, or writing the English language. Clearly such a list of words is of basic importance in teaching the English language to foreigners.

4. *Contributions to the General Theory of Curriculum Making*

One of the most important uses of the writer's monograph as a whole is to stimulate more precise thinking concerning the more important problems involved in making the curriculum.

A large number of the issues raised in this monograph belong in principle not only to spelling but also to other subjects in the course of study. The discussions of the basic problems in curriculum making found in books and in periodicals are often

almost wholly of a merely theoretical or speculative character. The data of this investigation help bring some of this speculation down to solid ground. Mention already has been made of the manner in which the data in the Commonwealth Study illustrate the necessity of considering both frequency and cruciality as measures of importance of subject matter. Among the many other problems upon which these investigations throw light, not only for spelling but also for the curriculum in general, are: the determination of the degree to which courses must be adapted to different communities, the determination of the degree to which vocational needs are specialized, and the discovery of the amount of change which will be made in the course of study from generation to generation.

5. *The Value of Stimulation to Further Research*

Finally, the writer is glad to follow the fine example set by his former teacher, Professor Edward Thorndike, in ending the discussion of his own investigation,⁶ in which he says, "One chief service of *The Teacher's Word Book* will be to aid in the production of some much better list, from wider counts, to replace it." The degree to which these data may be made the basis for further investigations is one of the best measures of the usefulness of this study.

⁶ "Word Knowledge in the Elementary School" by E. L. Thorndike, published in the *Teachers College Record* for September, 1921.

MEETING INDIVIDUAL DIFFERENCES IN SPELLING ABILITY

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PROBABLY every good speller can recall from out of his own experiences the time wasted in school during the spelling period; can remember writing and re-writing, spelling and re-spelling words that he already knew how to spell long before he came upon them in the spelling lesson.

In those days, the student could make only one of two choices, he could either surreptitiously fool away the time during the spelling period or he could over-learn until bored, the words already known.

To some extent this evil has been remedied by an individual instruction method. By this plan children are given as a test on Monday the entire list of words to be learned for the week. After correcting this list, the child studies during that week only the words that he missed.

This practice takes care of the weekly lessons, but what of the child who knows how to spell, before studying, practically all the words outlined for the year or at least for the semester?

In attempting to solve this problem the University Elementary School has tried the following plans.

In the fall of 1925 a test was given to the children in each grade. This test consisted of fifty words of random selection chosen from the new list of words outlined for the semester's work. This test will be referred to as the *initial test*.

Any child who spelled correctly ninety-four per cent of the words in this initial test was excused from spelling for that

semester. The rest of the children studied their regular lessons by the individual instruction method.

At the end of the semester a review test was given over the semester's words. This review test consisted of fifty words selected at random from the studied words. Thus each child took two tests over the first semester's words, the initial test at the beginning and the review test at the end of the semester.

Below are the results by grades on the initial test and on the review test made by the children who were excused from spelling during the semester. It may be noted that in no case did a child fall below the required per cent in the review test.

TABLE I—SHOWING RESULTS ON INITIAL
TEST AND ON REVIEW TEST

Grade	Child's Number	Percent Correct on Initial Test	Percent Correct on Review Test
I	None		
II	21	94	100
III	3	98	94
	13	94	98
	15	98	98
IV	1	94	98
	12	94	96
V	5	98	96
	12	98	94
	16	100	Moved Away
	20	100	100
VI	21	96	98
	4	100	100
	7	96	100
	16	94	96
	17	100	96

The same plan was carried out for the second semester, with similar results.

The second semester of this year, however, a different plan is being tried. The initial test over the second semester's words was given. Any child who spelled correctly all the words in the initial test was excused from spelling during the second semester. All the children who spelled correctly ninety per cent or more of the words in the initial test were excused from the regular spelling period and were allowed to proceed as rapidly as possible with the learning of the words which they did not know in the semester's list. To these children the entire list of words for the second semester was pronounced. In the second grade the teacher pronounced the words, but in the grades beyond the second, the children pronounced the words to each other. In two grades the child or children who made one hundred per cent on the initial test pronounced the words. Each child made a list of the words which he missed. He is now learning these words as fast as he can. When he has learned all his words he will be tested over them by some child who is excused from spelling. He has then finished his spelling for the semester, with the exception of the review test to be given at the end of the semester.

In addition to this provision for the very good speller, a special effort is being made to help the very poor speller. In attempting to find out why a child spelled poorly, the following reasons were discovered: (1) in some cases the child did not know how to pronounce the words since they were outside of his reading vocabulary; (2) in other cases he did not pronounce the word correctly; (3) in others he did not see and pronounce the syllables in the words; and (4) in still others he made writing errors of one kind or another. These poor spellers are being given special help in the pronunciation of the spelling words, are being helped to separate words into their syllables, and are receiving drill in reading orally the words of the spelling lesson. These children are

also being given additional help in other reading in order that they may have a wider acquaintanceship with words. An analysis has been made of the writing difficulties of these poor spellers and to these difficulties the child, under the teacher's direction, pays particular attention during the writing period.

No doubt, in the reader's mind the question has arisen, "What do the children who are excused from spelling do during the spelling lesson?" There are any number of things which a child may do. It is expedient that the children who are excused work on other things independently, in order that the teacher may use the entire spelling period in teaching spelling to those children who have not been excused. For that reason the children who are free at this period must have clearly in mind the work which they will do while the others study spelling. Some of the teachers post on the bulletin board each week a list of things to be done and the children then sign up for the duty which they choose. Occasionally, a child has a job outlined which will take several weeks.

Below is a list of activities which children in the various grades have carried on during the time when the other children were studying spelling.

1. Corrected spelling words in reading, composition, and geography papers, and tabulated them in a notebook under each child's name.
2. Checked over library withdrawal cards to see what books were being most frequently read.
3. Filed in individual folders children's papers which were to be preserved.
4. Cut out pictures needed for the literature bulletin board.
5. Mended tears in books.
6. Prepared talks from current magazines to give during opening exercises
7. Read for enjoyment.
8. Separated hectographed sheets of material containing silent reading exer-

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RESEARCH IMPROVING THE TEACHING OF SPELLING

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THERE are three ways in which research has improved the teaching of spelling. First, through the careful analysis of 5,100,000 running words, research has given us the 10,000 words most frequently used in business and social practice. In other words, it has provided a better list of words for pupils to study.

Second, the findings of research make it possible to place before the pupils of each grade the words that are most appropriate for them. This means, for example, that the words a fifth grade pupil is asked to spell are those that will be of permanent value to him, since they are those most frequently found in writing and in reading outside of school; and before words are placed in the fifth grade list, these additional factors are taken into consideration: (1) occurrence of the word in children's spoken vocabularies and in compositions written by children in the fifth grade, (2) the usefulness of the word in reading done in the fifth grade, and (3) the difficulty which children find in spelling the word correctly.

According to Horn the best index of the probability that a word will be misspelled is the product of the number of times that the word is used and the percentage of errors made by those who use it. In other words, in making a spelling list, both the factor of frequency of use and the factor of difficulty of spelling must be considered.

Better methods of teaching have been the third contribution of research in the

field of spelling. To illustrate, much time is saved the pupil by testing him on each lesson before he begins to study. Then he studies only those words which he misspelled in the test. Individual record sheets show him what progress he is making, daily, weekly, monthly; and controlled reviews result in fixing the habit of spelling words correctly.

Developing a "spelling conscience" is the first step in teaching pupils to spell. One of the teacher's first responsibilities is inspiring the pupil with the ideal of correct spelling; that is, with an ardent purpose or desire to spell correctly. This "spelling conscience" will put him on guard against defects in his spelling; will lead him to keep track of words which he cannot spell, and later to look them up and memorize them; will lead him to learn to spell new words which he comes across in his reading; and to use consciously rules and other devices to improve his spelling. Mistakes in spelling those words which have been studied previously indicate carelessness or a dull or lazy mind. This fact has spurred many pupils to avoid the stigma attached to misspellings by correcting them.

The spelling teacher's second responsibility is making the pupil intelligent and responsible in his attack on his own spelling problems. This result is achieved through a testing plan which shows each pupil his particular deficiencies, by efficient methods of study, by standardized test scores which show each pupil how his

scores compare with thousands of other children in the same grade, and by thorough-going reviews.

What are the major aims in teaching spelling? Teachers are more or less in agreement on these five aims:

1. To make automatic the accepted sequence of letters in words most commonly needed for expression of thought in writing.

2. To develop the meaning and use of words to be spelled.

3. To develop what is termed a "spelling consciousness," that is, the ability to recognize almost instantly the correct and incorrect spelling of words.

4. To develop a "spelling conscience." This "spelling conscience" may be referred to as an ardent desire to spell correctly.

5. To develop a technique for the study of spelling. This technique involves the

application of an effective method of learning, how to attack and master the sequence of letters in the given word, the method of diagnosing sources of errors in the spelling of specific words, the knowledge of how to use the dictionary in finding the pronunciation, meaning, and correct spelling of unfamiliar words, and the knowledge of what to do when in doubt concerning the spelling of a word.

How shall a pupil study spelling? Further research is needed to prove completely which method is the best. At the present time pupils are frequently given these six directions:

1. Look at the word carefully as you pronounce it.

2. If the word has more than one syllable, pronounce each syllable very distinctly looking at each while you do so.

3. Think what the words means.

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cises, remedial work in arithmetic, tests, etc.

9. Numbered the pages of the pictorial book and of the meat packing pamphlets.

10. Gave out lists of words to children who had finished their spelling job for the week. These words were missed in written work other than spelling.

11. Helped children who had long lists of words to study for the week.

12. Kept the teacher's weekly record of words missed.

13. Used the time to work on charts, graphs, or drawings, etc., to be used in the geography period.

14. Pronounced words to those who were absent from any of the tests.

15. Arranged in alphabetical order the words from the spelling list for that grade,

in order that the grade might have the list for reference when needed.

16. Looked up meanings of words taken from other lessons.

To what extent this latter plan of excusing children from spelling succeeds will not be known until the June tests. As a justification for being excused, these children should probably make a score of at least ninety-eight per cent on the review test in June. It may be that the limit for being excused has been set too low—ninety per cent. Time will tell. In the meantime, these children who are excused will be receiving a training in working independently which should profit them exceedingly. That gain in independence may, of itself, be a justification for the experiment.

RESUME OF INVESTIGATIONS CONTRIBUTING TO CONTENT OF SPELLING AND ITS GRADING

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SPELLING

SPELLING and writing are handmaidens to English Expression, and in this relation they should be kept. Obviously, then, spelling is the essential tool of written expression and to have fluent, automatic expression the child must spell accurately the words which he needs or uses. It is the duty of the elementary school to familiarize the child with the vocabulary which develops naturally in the child's life needs, to give his native activity and interest normal opportunities to express themselves and to create a desire to meet his needs. The two outstanding objectives of spelling are:

1. To develop the ability to spell correctly words which the child has occasion to write.
2. To establish the habit of making sure about the spelling of words in case of doubt.

The following are some of the studies or investigations which bear on the selection of the words which are to be included in a course of study in spelling. The earliest investigation is listed first and the others follow in chronological order. The writer has selected only those studies which seem to help answer the questions "What shall be taught in each grade?" and "How shall these words be arranged or grouped?"

Study I

Chancellor, W. E. "Spelling: 1000 Words."

This study was made in 1910 for the purpose of finding the 1000 most important spelling words.

Lists of words were submitted by 500 grammar school pupils, each list containing ten words which the pupil thought most worth knowing. He studied the spelling situations in American schools for five years, and read and examined dictionaries. Spelling papers written by thousands of pupils were carefully studied. As a result, 20,000 words were listed; these words he felt no grammar school graduate should miss.

The impossibility of teaching, 20,000 words to elementary school children brought up the problem of what words were the most useful of all. The 1000 word list finally resulted.

Dr. Chancellor does not state just what methods were employed in making his 1000 word list, but apparently no scientific tabulation of words with their frequencies was attempted. This study at least marked a beginning.

Study II

In 1913, L. B. Ayres tried "to find out whether or not there exists a fairly definite body of words so generally used in ordinary correspondence that they should form the core or basis of the spelling vocabulary taught in the lower grades of our elementary schools." Two thousand short business and personal letters were analyzed.

Dr. Ayres points out that "no final conclusions can be drawn from this study because it is too limited in scope."

The chief importance of this study is the fact that it was a pioneer investigation. No other single study has been so influential in creating an interest in research for determining the word list in spelling.

Study III

In 1914, C. K. Studley and Allison Ware endeavored to provide teachers with suitable subject-matter for a common school course in spelling.

Sources:

1. 520 words from Ayres' Spelling Vocabularies of Personal and Business Letters.

2. 840 words which occurred more than twice in the study of 91 Friends' Letters by Miss McFadden and Dr. Burk.

3. Words collected and tabulated by the authors from 920 compositions written by city and rural children in grades 3 to 8.

Of the 200,000 running words which were inspected, 3,459 were different words or different forms of the same word. This survey has its value partly in the omission of words not clearly of common written use in life.

Study IV

In the same year, Anne Nicholson compiled "A Speller for the Use of the Teachers of California," which contains the words from four original investigations, which follow:

1. Burke, Frederick, Ninety-one friends' letters; number of running words 19,288; number of different words, 752. The method of compilation is questionable, yet the frequencies are given. The number of different words is small for this number of running words.

2. Through members of the Parents' Association of the San Jose Normal Training School, social letters were contributed. There were 719 different words in 719 letters. The frequencies were not given.

3. California Barrel Company contributed 100 business letters having 2,412 running words, 665 of which were different. Frequencies for each word were given.

4. 400 business letters from two of San Jose's largest department stores were contributed. The number of running words: 10,834; different words, 1,058, and their frequencies are given.

Of the four studies made by Anne Nicholson, only two listed the frequencies of the words studied. Unfortunately the other two studies are less scientific.

Study V

A. W. Cook and M. V. O'Shea made an unique study of the extent of the vocabularies from the personal correspondence of 13 people with one another.

Number of running words: approximately 200,000.

Number of different words: 5,200.

a. 40,000 words were selected from the letters of each three correspondents.

b. 5,000 words were chosen from letters of six correspondents.

c. 6,000 words were written by one correspondent.

d. 8,000 words were written by another.

e. 24,000 words were written by another.

f. 12,000 words were written by another.

Topics discussed related to a great variety of interests and activities.

The authors made four lists which show the distribution of words as follows:

1. List I. comprises 186 words used by everyone of the 13 correspondents.

2. List II. comprises 577 words which were used by most but not all of the correspondents.

3. List III. comprises 2,207 words which were used by less than a majority of the correspondents.

4. List IV. comprises 2,230 words used by only one of the correspondents.

The frequency of occurrences of each word is shown and they were compared with the Ayres and Chancellor lists. The authors determined to see to what extent the words which they found occurring most frequently in the material examined were found in three spelling text books in general use in the schools. It was found that:

1. 65 per cent of the words given in the spelling text books did not occur in the spelling vocabulary based upon the letters written by correspondents.

2. 70 per cent of the words appearing in all the spellers, appear also on the list constructed by the authors to constitute a spelling vocabulary.

3. 27 per cent of the words in List I, 33 per cent of those in List II, 28 per cent of those in List III, and 12 per cent of List IV are found in the spelling text books.

This scientific investigation throws light on the nature and extent of vocabularies of individual letter writers.

Study VI

A measuring scale for ability in spelling was the study made by L. P. Ayres in 1915.

The following studies were used as his sources:

1. Knowles, Rev. J. in 1904—The London Point System of Reading for the Blind.

2. Eldridge, R. C. in 1911—Six Thousand Common English Words.

3. In 1913—Ayres surveyed personal and business letters.

4. In 1914 Cook, W. A. and O'Shea, M. V., made a comprehensive study, *The Child and His Spelling*.

Dr. Ayres determined the 1,000 words which are used in his spelling scale, however, making the following comments:

1. About nine words recur so frequently that they constitute one-fourth of all the words we write. With the exception of *very*, all are monosyllables.

2. It is easily possible to identify the 10 commonest words in written English. They are probably *the, and, of, to, I, a, in, that, you, for*. With their repetitions they constitute more than one-fourth of all the words we write.

3. It is likewise possible to identify the fifty commonest words.

4. With decreasing reliability the 500 and even the 1000 commonest words may be identified.

5. The 2000 commonest words could not be identified as the subject under consideration varies.

This 1000 word scale has been more influential than any study in stimulating interest in the measurement of spelling.

Study VII

Pryor, H. C. in 1917 made a study and compilation to determine more definitely what, and how many words should be included in a minimal spelling list. He combined all of the previously mentioned studies together with the following:

1. Concrete investigation of the material of English spelling and the child's own spelling book. F. W. Jones.

2. The need of intensive work in spelling (unpublished) Algar Woolfolk.

3. List of spelling words. Prepared by teachers and supervisors of schools in Johnstown, Pa.

4. Spelling in the Boston Public Schools. McCray's Magazine, March, 1915.

5. Champion spelling book. Warren E. Hicks.

6. 6,000 Common English Words. R. C. Eldridge.

He checked each word found in the twelve lists in the dictionary, placing by each word a number indicating the list from which it came. Altogether 30,000 words were checked. The greatest number of words appeared only in one list, a smaller number in two lists, and a grad-

ually decreasing number with each added list. Tabulated they are:

1309 words common to 6 lists.

121 words common to 10 lists.

54 words common to 11 lists.

9 words common to 12 lists.

To the 1309 words which occurred in six of the twelve lists, he added 169 words from the Ayres scale which were not among these 1309 words, making a total of 1478 words.

This list is not the best for school purposes for:

1. By including the Eldridge list the technique of the investigation is marred because it is not a writing vocabulary.

2. It included the list from the Champion Speller, which is very poor in its vocabulary. Except for grading, however, this list was probably one of the best in print at the time of its publication.

Study VIII

Horn, Ernest in 1923 attempted to answer two questions:

1. Is there a need for a special spelling list for those who write letters about banking?

2. Do the correspondence needs of bankers vary according to locality?

Letters were chosen from fifteen states representing various sections of the country, the lists were compared with the vocabulary of general correspondence.

Summarizing: This study shows

1. That the words used in bankers' correspondence was somewhat a vocational list, but not exclusive to banking.

2. That those engaged to write or dictate such letters need not have more than an average education.

3. That training which will meet the needs in one section of the country will also meet the needs in other sections.

Study IX

Horn, Ernest determined to find the words most often needed in the writing done in life outside the school by compiling

all existing data concerning adult writing needs.

Among the investigations were:

a. Vocabulary of Business letters.

b. Vocabulary of Letters Written by Literary Men.

c. Vocabulary of Correspondence of a Personal Nature.

d. Vocabulary of Letters of Application and Recommendation.

e. Vocabulary of Material Contributed by Laymen to Newspapers and Magazines.

f. Vocabulary of Minutes, Sets of Resolutions and Reports of Committees.

g. Vocabulary of Excuses Written by Parents to Teachers.

h. A compilation of certain investigations made previous to 1922. There were twelve in all including Andersen, Ayres, Cook and O'Shea, and Burke.

In determining the 10,000 words, account was taken not only of the total number of times a word was used, but also of the number of different types of writing in which it was found.

This study is of great value. The high frequency words in this list are those which should be included in a course of study in spelling.

WHAT WORDS ARE MOST FREQUENTLY
USED IN WRITING DONE IN
SCHOOL?

Study X

In 1915, Jones, F. W. attempted, through free written speech, to determine what words, grade for grade, children use, and what words they need to know how to spell.

The theme writing was begun in the third month of the school year and continued until the vocabularies were apparently exhausted. The number of themes examined per student ranged from 56 to 105.

The frequency with which each word was misspelled led to the selection of 100 words, later known as "100 Spelling Demons."

Study XI

Bauer, Nicholas Superintendent of Schools of New Orleans, prepared in 1916 a list of words to be used as spelling material in the grades by determining the writing vocabularies of pupils.

In 18,000 children's themes, 2,500,000 words were analyzed and 19,000 different forms of words were found. Words were arranged alphabetically and the frequency of occurrence and misspelling recorded.

It was found that 3,037 words have a frequency of forty or more so the following assignment was made:

Grade.	Number of Words.
II	385
III	467
IV	476
V	543
VI	566
VII	600
VIII	Review of 3,037 words

In making the grade assignments, words used the greatest number of times in the third grade were listed in the second grade. The same method was employed for other grades except in the sixth and seventh.

Here the remaining 1166 words were apportioned to the two grades.

A close comparison exists between the words in this study and those given in the study of Cook and O'Shea. The number of different words found in analyzing two-and-a-half million words is more than four times as large as that reported by Jones. Bauer's study agrees closely with what we now know about the extent of children's vocabularies.

Study XII

Barthelmess, Harriet M. took the original compositions of the pupils from 70 elementary school districts of Boston, to determine the common words these pupils needed in writing.

A minimum list of words together with supplementary words was made after compiling these various lists according to frequencies.

Study XIII

Tidyman, F. W. wished to supplement previous investigations in three particulars:

1. By determining the second and third thousand words commonly used by children in their spontaneous compositions.
2. By determining the grades in which all common words are used.
3. By developing an accurate and expeditious method of examining words in large numbers.

The author analyzed 5,000 compositions chosen at random from 150,000 written in 27 schools by children in grades 3-9. Words of common use were omitted because only the frequency of rarer words were to be determined. Following are the omissions:

1. All grades—words of one or two letters.
2. Grades four and above—words of three letters.
3. Grades seven and above—words of four letters.
4. Names of persons and places were not counted.

Dr. Ayres pointed out that 99 words with their repetitions made up five eighths of all the running words. Extensive data indicate that the 100 commonest words with their repetitions make up nearly 59 per cent of all the words which one writes.

Tidyman took the 1254 words reported in four or more of the following investigations: Chancellor, Smith, Cook and O'Shea, Jones, Studley and Ware, and Ayres, and selected from these 1000 words that were found to be used most frequently in the present investigation. The second and third thousand were determined by their frequency as follows:

2nd Thousand: Words occurring at least 15 times.

3rd Thousand: Words occurring between 5 and 14 times.

The above procedure causes doubt as to the placement of words appearing at the extremities.

The following is the grade distribution:

Grade.	Number of Words.
III	1,103
IV	726
V	578
VI	293
VII	169
VIII	113
IX	22

When one considers the wide range of ability in a given grade, "first occurrence" in a grade is a doubtful method of grading.

Because the theme topics were not planned or controlled this investigation adds to our knowledge of children's written vocabulary. The real contribution is the author's method of cutting and sorting words. There is no doubt that the elimination of short words and common words brings a substantial saving.

Study XIV

McKee, Grace M. sought to formulate theme subjects which would bear on a great variety of experiences with which sixth grade children should be familiar.

She made a compilation of the vocabularies reported by Jones, Smith, Bauer, and Brown in order to compare her findings. She found but 1475 words which were common to four of the five lists. She concluded that all previous investigations have failed to use an adequate list of theme topics.

Again taking 1475 words common to the four lists, the investigator compared them with the Horn's adult writing list and Thorndike's reading investigation. From the findings, she concluded that the vocabulary of theme investigations constitute inadequate preparation for adult needs.

She further concluded that the vocabulary of children when properly stimulated resembles that of adult writing rather than that of adult reading; and that all previous investigations of children's themes have been limited in vocabulary by the lack of a wider list of topics.

INVESTIGATIONS OF THE VOCABULARY OF READING AND ITS SIGNIFICANCE FOR PURPOSES OF SPELLING OF WORDS FOUND THEREIN.

The following are a few significant investigations in the spoken vocabularies of children. They show the relation between writing vocabularies and speaking vocabularies of children of the same age or different ages.

Study XV

Thorndike, E. L.

There is no doubt that a word found not only in spelling but also in reading takes an additional importance. This investigation not only contributes the most important collection of data concerning the vocabulary of reading but also furnishes valuable data for purposes of measuring the overlap between the vocabulary of reading and the vocabulary of spelling.

Study XVI

Horn, Ernest. This study dealt with the vocabularies of individual children varying in age from one to six years. There were approximately 200,000 children of kindergarten age, and approximately 70,000 children in the first grade.

Number of different words recorded: 5,000.

This list was limited to words ranging in frequency between 15 and 25. It is exceedingly useful in helping to determine what words should be included in the primary grades.

Study XVII

The purpose of L. J. Graham's study was to determine:

1. What are the words used by children in classroom recitations in geography?

2. In what way does this vocabulary differ from grade to grade?

3. How does this vocabulary differ from that of the reading vocabulary reported by Thorndike and from the adult writing compiled by Horn?

Graham found that it is probable that at least half of the words "which a child used in his oral recitations in Geography are words which he will not use in his writing or find in his general reading."

A much larger sampling will have to be made before such conclusions could be finally accepted.

Study XVIII

A study of the classroom spoken vocabulary of seventh and eighth grade pupils was made by Mark L. Phares.

Stenographic reports of recitations and long hand samplings from pupil recitations in these grades were made.

The following are three significant contributions:

1. Realization of the extent of the vocabulary requirements put upon children in these grades.

2. It shows the amount of overlap between this vocabulary and that needed in writing letters.

3. It adds to the knowledge of the spoken vocabulary requirements in recitations in each of the important subjects taught in the seventh and eighth grades.

Study XIX

Byrne, Mary B. C. and Yocum, A. D. made an investigation into the word contribution of every subject suggested for the first three years in school by the New York City curriculum.

Every possible vocabulary source has been searched to discover the specific word contribution of each subject, and the vocabulary contribution of all subjects.

Further study was made for the purpose of determining the relative worth of each word and also the relative ease or difficulty with which each word is acquired.

Byrne's study affords data of value for deciding which words among those of known utility in writing may be most advantageously taught in the first three years of school.

GENERAL SUMMARY

The essential content of any curricula is the vital question of today.

In order to determine the content we should

First: Scientifically determine what we know.

Second: Determine what needs to be taught.

The scientific studies listed above have a very definite bearing on the first point. To evaluate the resulting findings is the next problem. The product will be according to the demands of modern education and integration, causing new concepts and motivation. In other words, philosophers and scientists will eventually determine and combine, to decide *first*; what is needed to allow the child to carry on his activities effectively—and *second*; what is needed for both child and adult life.

A resultant course of study in spelling should be an elastic graded course, continually changing to meet the needs of the child, and the adult needs, together with the social changes which are constantly taking place.

Although most of the investigators had a unity of purpose and every opportunity to profit by the outcome of former studies, yet no one study could be selected as an absolute guide for a course of study in spelling.

WHEN SHOULD WORDS BE TAUGHT?

Grading of Words

Words should be selected to meet the specific needs of average individuals, and should be given to them at the proper time. *Ernest Horn* in the *Eighteenth Yearbook* gives the following basic principles underlying the grading of words:

1. Those words which are most difficult should be presented in the more advanced grades.

2. Those words which are commonly used by children in any given grade should be placed in that grade.

3. Those words which are most commonly used in correspondence should be taught earliest, on the ground that the school must insure the correct spelling of such words before the elimination of pupils becomes serious.

4. Those words needed in other subjects should be taught in appropriate grades.

5. Words should be graded according to their length.

6. Words should be graded according to phonic progression.

The new Boston Spelling List was built up by the following successive steps:

1. Words graded identically in Chicago, Boston and Model School Lists.

2. Words graded identically in Chicago and Boston Lists.

3. Words graded identically in Chicago and Model School Lists.

4. Ayres words remaining. Graded by Model School List or Chicago as second choice.

5. Words remaining in Boston Minimum List. Graded by Boston Minimum List.

6. Words formerly starred in Boston Model School List but not in Ayres List.

7. The grading of some words was changed and additions and eliminations were made based on an intensive study of available information, with the purpose of producing a well-balanced list by grades.

Because of the wide range of ability present in each grade, Tidyman's graded list, based on the first occurrences of words is not acceptable. Likewise Pryor's grading of words was not done by scientific method.

Grading of the Horn-Ashbaugh words was as follows:

1. On the basis of Dr. Horn's compilation of correspondence vocabularies, all of the words now contained in both minimal and supplementary lists were ranked according to these studies.

2. On the basis of Dr. Ashbaugh's study of the difficulty of these words in the various grades, the words were arranged in order of ease of spelling.

3. With these two sources of data, the words for the lower grades are in general the easiest and the most commonly and frequently used.

4. On the basis of scientific analysis of the vocabulary of the first, second, and third readers, words which occurred most often in these readers were added.

a. Words included in the lessons for the first three grades are not only easy and fairly common, but are found also in popular readers of the grades in which they are placed.

b. Words for grades above the third increase gradually in difficulty in each successive grade, and pupils forced to leave school at the end of grade six or seven will have learned the words which they are most likely to need in writing.

The above system of grading is based effectively on frequency, difficulty, usage, and need, and the child's ability to master the words.

The following table lists the number of new words by grades:

	Minimum	Supplementary
Grade I	150	—
Grade II	340	—
Grade III	528	80
Grade IV	620	80
Grade V	620	80
Grade VI	640	80
Grade VII	600	60
Grade VIII	500	240
Total	3,998	580

The following are comparative grade assignments taken from the studies of Pryor, Tidyman, and the Boston List.

Grade	Pryor	Tidyman	Boston List
I	—	—	83
II	343	—	254
III	408	1,103	406
IV	216	726	383
V	187	578	288
VI	157	293	232
VII	131	169	303
VIII	38	113	181
Total	1,480	2,982	2,130

Summary

1. From the above four lists (Horn-Ashbaugh, Pryor, Tidyman, and Boston) minimum number of words range from 1480 to 3998.

2. Two authors teach no required words in the first grade.

3. One author does not require spelling until the third grade, and here he lists the largest number of words, gradually diminishing to the eighth.

4. One progresses from the smallest number in the first to the largest number in the 6, 7 and 8th grades.

5. The Horn-Ashbaugh list is progressive and follows the mental growth of the child.

MORE DETAILED ASSIGNMENT ACCORDING TO GRADES, BASED UPON HORN-ASHBAUGH SPELLING BOOK.

1. First Grade: (Second-half year).

Words: 1. Are few in number and relatively easy.

2. Most of them are phonetic.

3. Were found in correspondence and in a majority of first readers.

2. Second Grade:

List: 1. Contains 340 words.

2. Review lessons which include 80 of the most difficult first grade words, and 60 of the homonyms which give the most trouble.

Words: Selected because of frequency, easily learned and frequently used.

3. Third Grade:

List: A minimum list of 528 new words with 80 supplementary words which are here introduced for the first time. These words are easy to spell but not so frequently used in writing letters.

Objective: Complete mastery of review words.

4. Fourth Grade:

Words: Consist of 620 new and review words together with a supplementary list of 80 words.

Objective: Thorough mastery of review words.

5. Fifth Grade:

List: 1. There are 620 new words together with 80 review words and one review lesson containing homonyms.

2. Two supplementary lessons of new words. Also two lessons containing names of the month, days of the week, and certain abbreviations.

6. Sixth Grade:

List: Contains 640 new words, supplementary list of 80 words, with 80 words in the fifth grade list which are most commonly misspelled by sixth grade pupils.

7. Seventh Grade:

List: 600 new words, supplementary lessons of 60 new words and review words selected from sixth grade list because they are most commonly misspelled by seventh grade children.

8. *Eighth Grade:*

List: 500 new words, 240 new supplementary words, together with four lessons of words of the preceding grades which are most frequently missed by eighth grade students.

Also the hardest words, of the two thousand most frequently used in correspondence. *In addition* there are four letters to be given as dictation exercises.

Words in these letters are most likely to be misspelled, as shown by their *frequency* of use in correspondence and the *percentage of errors* of eighth grade pupils who attempt to spell them.

9. The value of teaching spelling rules is still somewhat a matter of controversy, although the weight of experimental evidence seems to indicate that children do not profit from study of rules in spelling. This time could be more profitably spent in the *direct* study of the important words covered by these rules.

No list or spelling book can be regarded as final. New words are constantly coming into use. The degree of accuracy with which familiar words are spelled will change as a result of consistent drill in spelling. The frequency with which many

of these words are used may be increased by instruction aimed to enrich and improve the vocabulary of pupils. The vocabulary of individuals varies to such an extent even among young children that it is believed to be desirable to put before pupils a much larger number of words than they are required to learn.

After a careful analysis of the foregoing sources it seems that to put before a child *only* those words assigned to be studied in one particular grade is to limit his ability in the general study of spelling.

Individual vocabulary lists are sound in form, stimulating in actual use, constructive in character and likely to produce definite satisfaction through aroused interest among the pupils.

CONCLUSION

With a speller which is the outcome or product of the finest educational studies and experiments, as a guide, the teacher should be allowed to select supplementary words from the every day written vocabulary of the child. She should have her method well in hand, her goal definitely established, and remember that only after positive contact with a word should it be included in the spelling list. She should know that she should test first and drill only on the words misspelled. She should encourage each child to keep an individual dictionary (word books); plan reviews and tests at least twice each week and finally she should remember that words are truly tested in their original setting, sentences.

NEED FOR A COMPREHENSIVE PROGRAM OF LANGUAGE TEACHING

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Marked progress in teaching language has been made in recent years, yet in many ways it seems that improvement has only begun. There is a closeness of relation between genuine life situations and language work undreamed of twenty years ago. Recognition of the importance of oral language has kept pace with the emphasis upon silent reading. In the field of written work scientific measurement of results has appeared. The sharing of constructive criticism between class and teacher is tending toward more wholesome standards. A beginning has been made in research to discover the impulses which arouse language needs. These movements are all full of promise.

Tradition, however, continues to have a throttle hold in many situations. The one-time schoolroom virtue of quiet is still the guiding star of many principals and superintendents, who have not learned that practice in the use of language under natural conditions is essential for growth in language power. A meticulous regard for perfection of detail sacrifices motive and natural style for barren form even in the writings of some educational leaders. Teachers are still ready to affirm that their own difficulties in teaching the subject are due to the preceding teacher. There is woeful ignorance in many grades of objectives and standards in relation to the growth periods of neighboring grades.

As one help toward a solution which shall bring better coordination of effort

this tentative program is offered. Growth stages are noted and their main characteristics listed. Surely it is not too much to expect that each teacher shall know the leading changes which take place, the shifting of emphasis as children develop. Probably others would make different divisions and name them differently. The sixth grade may belong with the fourth and fifth; the seventh, eighth, and ninth may belong together. A final comprehensive program should be the work of many. The writer is indebted to her students for many valuable suggestions in the program here submitted.

Tentative Program of Language Work

1. *The initial period, beginnings in the use of language. Pre-school, kindergarten, and first grade.*

Direct relationship between ideas, activities, situations and vocabulary, idiom, sentence. Much use of language as expression without regard to audience. A growing need for communication. Use of language in clarifying ideas. Language units short. Style marked by freedom and spontaneity. Continuity achieved by use of "and." Beginning of interest in handwriting and spelling as indicating mastery and in written words and group sentences for use in projects.

2. *Period of assurance in social use of oral language; frequent need for written language. Second and third grades.*

Oral language the most common medium

of expression in all subjects and situations. Better sense of audience. Thoughts clearer and units longer because of larger experience and increased vocabulary. Style still fluent and natural but growing in definiteness. Sentence sense more apparent, greater variety in sentence structure. Introduction of simple outlines as guides to expression. Frequent need for short written units for definite purpose. All written work under careful supervision so that desirable habits are initiated.

3. *Period of rapid growth in control of oral and written language. Fourth and fifth grades.*

Time devoted to oral and written work about equal. Thought more complex, sentence sense more certain. Beginnings of organization by individual pupils, larger vocabulary, increase in individual responsibility. More freedom and confidence in handling language forms, simpler forms becoming habitual. Need for help in developing variety in style, in building more complex sentence forms, in discriminating in word usage, in discovering forms which need mastery. All written work under careful supervision. Audience conscious of itself, group standards becoming recognized. Remedial cases needing special care.

4. *Period of wide use of many types of language forms for many purposes. Sixth and seventh grades.*

Appreciation of language as a means of controlling situations, increasing sense of purpose, children conscious of many purposes. Wider experiences furnish stimulus for expression. More independent work, greater initiative in selecting types of language expression to fit situations, higher standards both group and individual. Larger social and vocational aspects of language beginning to influence pupils. Many simple forms habitual, most difficulties arising through increased complexity of expression for which forms have not been taught. Remedial cases needing special care.

5. *Period of confidence in use of language, of refinement of adjustment between form and purpose. Grades eight to twelve inclusive.*

Freedom in initiating units of work, creative impulse strong. Variety of oral and written types of language work under control. Group responsibility strong and group criticism most helpful. Interest in details of diction and language forms. Individual differences marked, frequent individuality of style, remedial cases needing special care.

RESEARCH IMPROVING THE TEACHING OF SPELLING

(Continued from Page 175)

4. Look away from the page. Try to picture to yourself the way the word looks. Spell it as you recall it. If the picture is not perfectly clear, look again. Spell it again.

5. Write the word on a piece of paper. Compare it with the word in the book. If it is incorrect begin again at (1).

6. Make a graph for each day's work to show how you are progressing in spelling.

Suggested problems for research by classroom teachers.

1. Causes of misspelling and relative frequency of each.
2. Relative efficiency of different methods of teaching spelling.
3. Vocabularies of letters of children of different ages.
4. Spoken vocabularies of children of different ages.

EDITORIAL

Research of Constructive Significance

OCCASIONALLY an outstanding piece of research is completed of great potential significance. An example is the investigation of "Word Knowledge in the Elementary School," by Dr. E. L. Thorndike. Such investigations are the bases of educational progress. The research expert founds new inquiries upon them; the school administrator builds more intelligent courses of study upon their data; the classroom teacher attains new powers of discrimination through them.

Dr. Ernest Horn made a singularly valuable contribution of this type in his study of words most commonly used in writing. "The Basic Writing Vocabulary," which he made available, is not only of very great significance in itself, but will result in many other important contributions. His investigation clears the way for answers to questions previously unanswerable.

Some of these questions Dr. Horn himself raises in his discussion in this number of *The Review*, page 167. Among these questions are:

In what degree must the course of study in spelling be adapted to community interests?

In what degree are vocabulary needs specialized?

What amount of change should be made in the course of study from generation to generation?

What would the results be if the spelling period were omitted, and spelling taught incidentally?

Should the derived forms of words be taught?

Which spelling rules, if any, may be taught with profit?

What improvements should be made in dictionaries published for school use?

In addition to the questions raised, certain vocabulary investigations included in Dr. Horn's research seem to point the way to further interesting studies. One of special importance is suggested by his investigation "of the vocabulary of a single individual over a period of eight years." Such investigation is sufficiently important to be extended, possibly in some such manner as the following:

An investigation of the vocabulary needs of several individuals, studied separately, in two phases:

First, over a period of twelve years, including the years of school life from grades one to twelve.

Second, over a period of eight years, including (1) for half the number of individuals investigated, four years of university life, and four subsequent years of professional life; (2) for half the number investigated, persons who do not go to college but enter business or trades directly on leaving high school, eight years of vocational life.

Dr. Horn's research has cleared the way for further investigation in answering such questions as these. It is to be hoped that problems so vitally important will be made the objects of early scientific investigation.